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ABSTRACT

Assuming that the ability to interpret punctuation is basic to reading comprehension, a study was conducted to assess the junior high school reader's ability to interpret internal punctuation in a written passage. From an examination of texts, reference and research materials used at the junior high school level, six uses of three punctuation symbols--comma, colon, and semicolon--were chosen for examination. Sentences selected from junior high school texts were adapted and woven into a passage that included 20 sets of paired sentences. One sentence in each pair contained internal punctuation influencing the meaning of the sentence, while the other sentence had no internal punctuation. Forty questions about single sentences within the passage were then administered to 255 seventh grade students. Results showed that students obtained lower scores where the interpretation of the internal punctuation was necessary for comprehension than where no internal punctuation was used. This suggests that teachers in the content areas need to be alert to the internal punctuation utilized in their textbooks and need to alert students to the implications of those symbols. (HOD)

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THE INABILITY TO INTERPRET INTERNAL PUNCTUATION - AN INHIBITING FACTOR IN COMPREHENSION

Noreena Carr

This paper was presented at the Washington Organization for Reading Development, WORD-IRA Seventh Reading Research Conference. The research was stimulated by an obvious relationship between comprehension and utilization of punctuation. A search of ERIC materials indicated meager investigation of this area and none specifically related to the reading task as encountered by students with assigned texts. It is hoped that as the research in comprehension is continued greater insights into the area of internal punctuation, as related to comprehension, may be reached and may transfer into the classroom. Perhaps sharing this research with ERIC consumers may assist in the process.

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THE INABILITY TO INTERPRET INTERNAL PUNCTUATION -
AN INHIBITING FACTOR IN COMPREHENSION

"If teachers would teach students how to read punctuation marks their comprehension of reading materials would be significantly improved." This comment of a state reading supervisor resulted from her many opportunities to observe reading in the classroom. It was followed by the remark that she had never found any research to verify or disclaim her observation.

This observation was in striking agreement with the observations and theory of the author. An investigation was undertaken to study the impact of punctuation on reading comprehension. The junior high school level was selected since the students of these grades are at a critical point in their scholastic program. In junior high school pupils are confronted with increased amounts of reading, and introduced to more sophisticated material than previously encountered in elementary grades. It is at this level that students are left more to their own initiative and ability. Much of the learning contained in the junior high school curriculum is gained through the medium of the written language; academic failure or success is heavily dependent upon research materials (Bormuth, Carr, Manning and Pearson 1970). To what extent is the ability to interpret punctuation a factor in their failure or success?

In the reading required of secondary students there is an increase in the use and purposes of internal punctuation. Since a writer assumes

that the reader utilizes the chosen punctuation in order to grasp the message correctly, it is of vital importance that junior high students use such aids in comprehension. Yet there is reason to question the young student's competence in this area. Educators indicate that students may recognize punctuation in an English class setting, yet not employ them as meaning-bearing signals to assist comprehension (Cook, 1971; Heilman, 1967; Johns, 1975).

Reading is an active process in which the reader must use the strategies of sampling, predicting, confirming or rejecting, and integrating information in order to derive meaning from the graphic, syntactic and semantic clues provided by the author. According to the linguistic theory of reading, sentence comprehension cannot adequately take place without recovery of the deep structure of the sentences (Simon, 1971; Wardhaugh, 1973; Huggins, 1977).

Syntax is the bridge which takes the reader from the surface to the deeper underlying meaning of the sentence. It is a primary means by which the reader can determine the intended relationships between words or sentence segments. The reader uses syntax when employing function words, inflectional suffixes and punctuation as cues for recognition and prediction. The most important function of the syntactical element, punctuation, is to show relationships -- to show what goes with what, to mark off boundaries. It is the only specific visual clue which assists the reader to cite these relationships. Often the writer's message is revealed soley through his choice of punctuation. The logic of a situation is reinforced by punctuation, and the notion of suspension is signaled by punctuation.

Punctuation gives off signals regarding the author's thought. Along with word order, punctuation is a basic key provided by the writer for the reader -- it is an indispensable aid to comprehension. We are all familiar with such sentences as the following where the meaning is totally dependent upon the punctuation.

Woman without her man is a raving maniac.
Woman, without her, man is a raving maniac.

For your birthday I'll send candy and nuts to you.
For your birthday I'll send candy, and nuts to you.

The ability to interpret punctuation is then basic to comprehension. In fact, this weakness can be more subtly precarious for accurate comprehending than is a graphophonemic or a semantic weakness. If readers cannot recognize a word, or determine its meaning they tend to be immediately cognizant of their problem. Syntactic failures, such as the omission or misinterpretation of punctuation, are not as blatantly obvious.

PURPOSE AND PROCEDURE

Since a search of the subject revealed no published research directed to this problem, a study was conducted to assess the junior high reader's ability to interpret internal punctuation as encountered in the written passage. No instrument being available to test for this, an instrument was developed which we shall call the Punc Test.

A survey was made to determine the scope of internal punctuation in the reading materials used by secondary students. From an examination of texts, reference and research materials used at the junior high level, three punctuation symbols were selected as being common meaning-bearing punctuation marks. Six uses of the comma, colon and semi-colon were chosen for examination. They were:

The colon as used after a statement which is followed by an explanation, and as used within a sentence to introduce a list which is not preceded by for example or such as.

The comma as used to separate items in a series, to separate parts of a sentence, and as used to separate nonrestrictive elements of a sentence.

The semicolon as used to join two sentence structures not connected by a coordinate conjunction.

Sentences were selected from junior high texts, adapted and woven into a passage which included twenty sets of paired sentences. Since a desired characteristic of the passage and of the entire test was to have it correspond with the conditions encountered by seventh grade students with their texts, it was not feasible to employ identical sentences with and without punctuation. Each pair was similar in syllabic length and vocabulary difficulty. Effort was made to keep syntactic structure comparable, particularly in the aspect of subject-finite verb relationship, and number of concepts presented. The Dale-Chall Readability formula was applied to the text as a whole, to the internally punctuated sentences and to the non-punctuated sentences. In each instance the readability level fell within the 7-8 reading level. The Fry Readability formula yielded a 7-8 reading level also. The prime difference in each pairing was internal punctuation. One sentence in each pair contained internal punctuation which influenced the meaning of the sentence. The other sentence of each set utilized no internal punctuation. Following are some of the paired sentences:

a. He watched a stingray glide by, a barracuda drift lazily in the distance, a giant clam sitting on the rock.

Word count: 20
Concepts: 3
Punctuation: commas

The winner of the famous international car race was also a talented musician who played the piano for the boys.

Word count: 20
Concepts: 3
Punctuation: commas

b. Suddenly there were loud noises from the engine; screaming and screeching, a car crew from behind signaled the driver in for an emergency check stop.

Word count: 25
Concepts: 3
Punctuation: semicolon and comma

The frequent mention of Cougar reminded the boys of the unusual film on wild animals which they had seen on the trip coming down.

Word Count: 24
Concepts: 3
Punctuation: none

Questions were constructed which were directed to single sentences within the passage. Only literal questions were utilized in an attempt to control variables of interpretation and experiential background, and to assess more clearly the students' ability to reach meaning through the punctuation. These questions were checked for clarity, directness, literalness, passage dependency, grammatical cueing, parallel stem lengths and plausibility of alternatives. Forty questions were than selected as a result of a pilot study with seventy-two seventh graders. These were arranged in the same sequence as the information in the passage. To eliminate the memory factor students were allowed free access to re-reading the passage.

The revised test was administered to 255 seventh graders within a school district. All students enrolled in the seventh grade and in attendance on the test date were administered the test. All tests were administered within a two week period during the first half of the school day.

DATA ANALYSIS

Concurrent validity for the Punc Test was established by correlation with the SRA/Assessment Survey, Form E, Blue Level (1971). It was representative of the reading comprehension tests given in these schools. It had been administered four months previously and is reported in Burns' (1972) Mental Measurement Yearbook as among the better achievement tests. The SRA had minimal use of punctuation, and success in answering test questions was not dependent on interpretation of punctuation symbols. A Pearson Product-Moment correlation of .51 was found. This is significant at the .001 level.

The Spearman-Brown split half formula to determine internal consistency rendered a reliability of .73.

Construct validity for the Punc Test was procured by comparing the correlation of the raw scores of the punctuated items with the raw scores of the non-punctuated items. A Pearson Product-Moment correlation coefficient of .35 was obtained. Since the standard error and standard deviation of both tests were identical and there was a 5.46 difference in the means of the two tests a t statistic was used to determine the significance of this difference. This resulted in a t value of 26.81 which is significant at a .001 level.

Below is a sampling of questions from the tests, along with the specific sentence within the text which contained the answer, and the response students gave for each. Asterisked answers indicate the acceptable response.

ITEM 6

He, (Joe) watched a stingray glide by, a barracuda drift lazily in the distance, a giant clam sitting on a rock.

What did Joe see in the distance?

A. a clam B. **a barracuda C. a stingray

RESPONSES:

51% 39% 9%

ITEM 10

The prediction was that Jim Cougar would lead with Muntz; and Dan Wade and Jones would run far behind. In the big race Cougar led with Muntz and Wade; and Jones ran far behind.

When were Muntz and Wade in the lead?

A. in the prediction B. **in the big race C. Both A and B

RESPONSES:

18% 55% 26%

ITEM 25

The weeks before they had left home were terrible: there was so much snow, it had melted fast, their house had flooded, and they didn't even get a day off school.

Bob figured that not to have gotten a holiday was one more reason why the winter had been so terrible.

A. ** yes N. NO C. Not mentioned

RESPONSES:

58% 10% 31%

ITEM 38

The street was narrow, and strange looking houses were ranged on either side; like gloomy sentinels dark, gray, watchful dogs stood waiting in the distance.

What looked like gloomy sentinels?

A. the street B. the houses C. **the dogs

RESPONSES:

14% 52% 35%

ITEM 40

The boys met their dad and two sisters. Their dad was scolding Sally, and Anne and the boys felt mighty glad they had checked out before leaving their cottage.

When the boys met their day and sisters their dad was scolding

A. Anne B. **Sally C. Both

RESPONSES:

1% 50% 49%

CONCLUSIONS AND CONSIDERATIONS

A theory underlying this study held that secondary students have a problem in comprehension when confronted with internal meaning-bearing punctuation. The results of this study sustained this theory. Analysis of the scores of the two sub-tests evidenced a significant difference between the two scores. The seventh graders who were tested obtained lower scores (mean difference of 5.46) where the interpretation of the internal punctuation was necessary for comprehension than where no internal punctuation was utilized. To translate these results into our ordinary school jargon, one might say that in the non-punctuated sentences of the Punc Test these students obtained a mean of 75%. By contrast, the mean for the punctuation-oriented sentences was 47%. This is indeed a difference worthy of consideration, especially when comprehension is the factor.

As evidenced in the Punc Test, and confirmed by many teachers, students do ignore or "mistranslate" punctuation with the unfortunate results of "miscomprehension".

> Often the same combination of words can convey several meanings, depending on the punctuation used. But the meaning of any sentence is often lost if a reader doesn't respond to punctuation marks. (Miles, Fitzgerald and Tuiman, 1977).

Leady (1963) emphasized this when stating; "A knowledge of punctuation will help you cut your way through a jungle of verbal underbrush". Surely our students encounter a "jungle of verbal underbrush" as they struggle with new vocabulary and new concepts in their text books. Johns (1975) and Spradley (1971) found that a main cause for lack of comprehension is the ignoring of punctuation marks.

Those who have done research are aware of the limitations and weaknesses of each study. It is easy to empathize with the frustrations of Sisyphus when attempting to develop a measurement which approaches the reality of the reading in secondary texts and yet control all the factors requisite for determining the impact of internal punctuation on comprehension. No doubt the current emphasis on comprehension research will provide clearer insights and delineations in this area. However, through this study certain questions have already manifested themselves for consideration in the area of punctuation and comprehsnsion at the secondary level.

1. Because punctuation is emphasized so definitely in English Classes are we assuming that students automatically and effectively utilize punctuation symbols as an aid to comprehension?

2. Should use of punctuation be taught as a specific reading skill, and not relegated to writing classes only?

3. Where and how are we teaching our students to notice and interpret those punctuation symbols which authors carefully select to provide nuances of meaning and even coherence for their readers?

4. If internal punctuation poses a barrier to comprehension how can such skills be taught? As indicated above there is reason to hold that "inserting" punctuation in English classes does not prepare the reader for interpretation of internal punctuation as an aid to comprehension. Recent studies indicate the strong influence which writing has on reading comprehension. If more attention were given to writing which uses internal punctuation, would young writers be more able to interpret the punctuation employed by other writers?

5. Should the complexity of internal punctuation be considered a factor when determining the readability of texts?

6. Is this aspect of comprehension given adequate consideration in teacher preparation courses in reading? In a survey of ten content area texts this author found the factor of punctuation was not discussed.

It would surely seem that teachers in the content area need to be alert to the internal punctuation utilized in their textbooks and, in turn, need to alert students to the implications of these symbols as their young readers wend their way through the "verbal underbrush". Reflections on the nature and purpose of internal punctuation, the experience of educators, and this research collaborate in reinforcing the original

statement - "If teachers would teach students how to interpret punctuation marks their comprehension of reading materials would be significantly improved."

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Table 1

Statistical Data on Punc Test

Descriptive Statistic	Value
Number of Subjects	255
Mean	24.41
Standard Deviation	4.74
Minimum Score	13
Maximum Score	38
Possible Score	40
Average Item Difficulty	.61
Average Item Discrepancy	.28
Average Item Reliability	.24
Standard Error	2.62
.99 Confidence	20.09
Spearman-Brown Split-Half Reliability Coefficient	.73

Table 2

Comparison of the Raw Scores of the Punctuated and Non-Punctuated Items of the Punc Test

Variable	Mean	Standard Deviation	Standard Error	Difference of Means	Standard Deviation	Standard Error	Correlation
Non-Punctuated Items	14.93[a]	2.89	.18	5.46	3.25	.20	.36
Punctuated Items	9.47	2.88	.18				

[a]N = 255 for all calculations.

Table 3

Pearson Correlation Coefficients and Significance

for Tests Used in Study

	1	2	3	4
1. SRA Reading Comprehension Test				
2. SRA English, Internal Punctuation	.21 p = .001			
3. Non-Punctuated Items of Punc Test	.44 p = .001	.10 p = .047**		
4. Punctuated Items of Punc Test	.44 p = .001	.12 p = .024**	.36 p = .001	
5. Total Punc Test	.51 p = .001	.14 p = .013**	.83 p = .001	.82 p = .001

*p < .001
**p < .05

Table 4

Means, Standard Deviations, and Total

Items for Tests Used in Study

	Mean	Standard Deviation	Items
SRA Reading Comprehension Test	37.27[a]	8.23	48
SRA English, Internal Punctuation	8.61	5.63	11
Non-Punctuated Items of Punc Test	14.93	2.88	20
Punctuated Items of Punc Test	9.47	2.88	20
Total Punc Test	24.40	4.75	40

[a]N = 255 for all calculations.

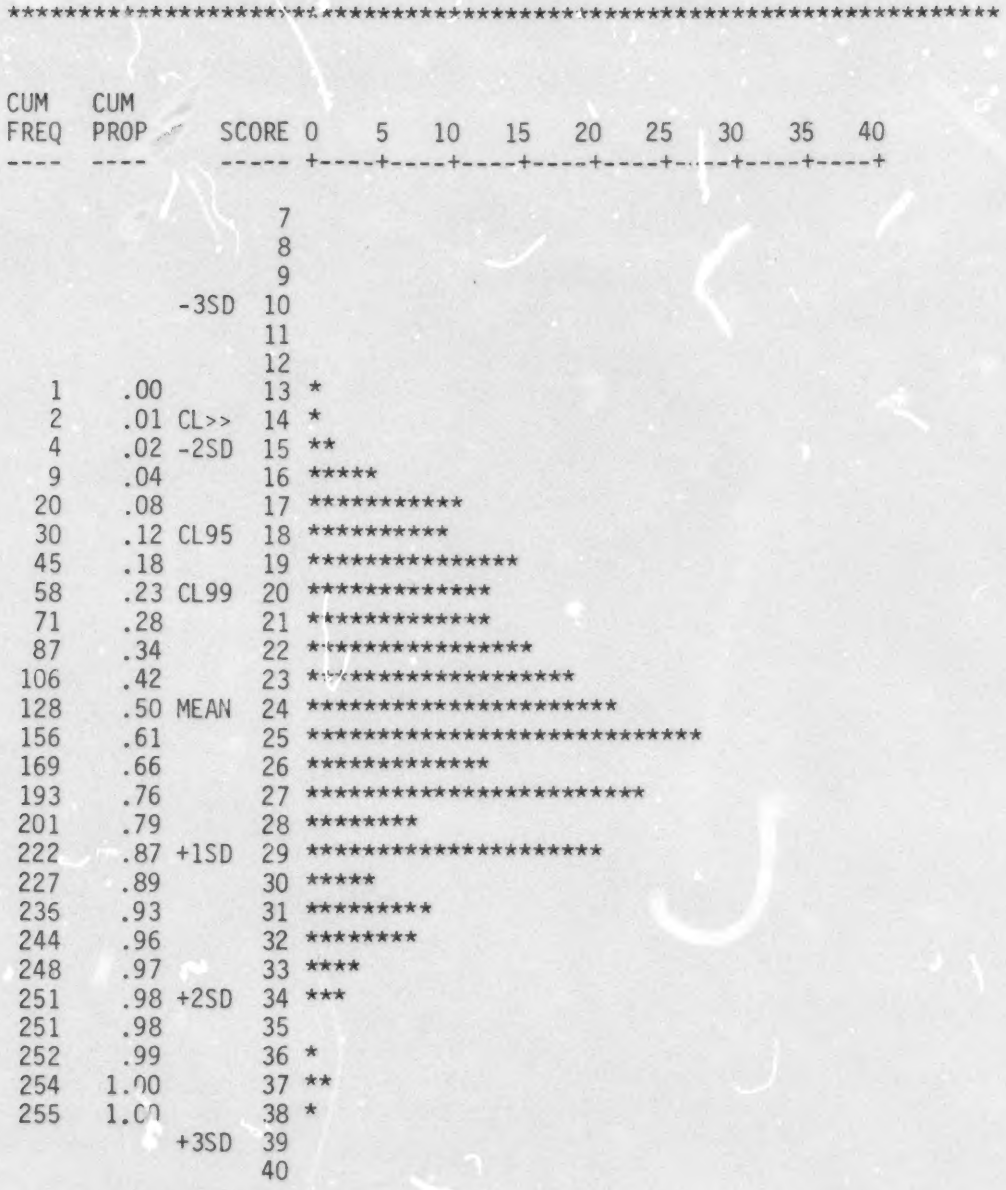

Figure 1. Frequency distribution of test scores for Punc Test.